

# Research on Optimization of Accounting Information System under the Background of Big Data

Yifan Yang\*

School of Economics and Management, Nanjing University of Science and Technology, Nanjing, China

\*Corresponding author: 932845808@qq.com

**Abstract.** Big data technology affects all walks of life, posing new challenges to the accounting industry and accounting information systems. Cloud computing provides convenient and effective network terminal access ports through its strong service model, and can also establish a resource sharing platform to improve the efficiency of enterprise accounting information management. This article explores the optimization of accounting information systems from the perspective of big data. With the help of big data technology, accounting information systems can achieve data optimization, storage function optimization, report optimization, analysis function optimization, decision-making function optimization, and coordination optimization. In addition, this article conducts research on the construction of enterprise accounting information systems under cloud accounting systems, and proposes optimization strategies aimed at optimizing accounting information systems and improving the economic benefits of enterprises. While using big data technology to optimize accounting information systems, enterprises should always pay attention to the effective application of big data on the premise of good security precautions.

**Keywords:** big data technology, Accounting information system, Cloud accounting.

## 1. Introduction

### 1.1 Research Background

With the development of the times, big data technology has gradually entered people's vision and has become an emerging technology for learning and application in various industries. Big data is characterized by high speed, large volume, authenticity, and low value density. At present, many businesses in accounting have changed from manual labor to computer processing, namely, accounting information systems. As an auxiliary tool, accounting information system is an important guarantee for enterprises to make effective management and decision-making, an important platform for enterprises to analyze the market, and an important tool for enterprises to master their own business situation. Enterprise accounting and financial statement data generation rely on it. At present, the functions of accounting information systems in many enterprises are not yet complete and cannot effectively provide assistance for enterprise management, analysis, and decision-making. By applying big data technology, enterprises' accounting information systems can be more complete and effective. Relying on the support of cloud computing platforms with strong versatility, large scale, scalability, and reliability, big data technology achieves efficient data processing, and is widely used in multiple business fields. At the same time, the field of enterprise accounting has also begun to introduce cloud computing, prompting the generation of cloud accounting that can handle a large amount of enterprise accounting information.

### 1.2 Research significance

This article analyzes the current situation of enterprise accounting information systems, proposes the problems faced by accounting information systems in the era of big data, and studies the advantages of applying big data technology and cloud accounting in accounting information systems based on a combination of theory and practice. It proposes optimization and security strategies for accounting information systems under big data technology and optimization strategies for accounting information systems under cloud accounting systems, aiming at optimizing enterprise accounting

information systems, Improve the economic efficiency of the enterprise. I hope that this study can provide reference for the optimization of accounting information systems in the context of big data.

## **2. Introduction to relevant concepts**

### **2.1 Overview of Big Data**

The concept of big data has been proposed for many years, but a unified and standardized definition has not yet been formed. In general, big data includes a large amount of data with a certain structure, while being able to refine the data. In the context of the rapid development of information technology, a large amount of data is bound to be generated. At the same time, technological innovation can meet more social needs, processing massive data into data results with different forms and structures. Therefore, the basic characteristics of big data include large scale, diverse forms, rapid emergence, real data, and dynamic changes.

There are various types of big data, including both structured and unstructured data. Structured data refers to data that can be presented in a certain logical structure, usually referring to various types of data that can be stored in the form of text, numbers, and tables. Currently, the data used in accounting information systems in China is structured data. Unstructured data refers to data that cannot be presented in a certain logical structure and exists in diverse forms such as pictures, audio, and video. These data have a short timeliness and a large amount, and may not have much value in themselves. Big data technology is required to mine and analyze them in order to extract effective information. About 85% of the data we can understand today is unstructured data. With the development of the times, unstructured data often contains more information.

### **2.2 Overview of enterprise accounting information system**

Currently, most accounting information systems used by enterprises are financial information systems, while only a few enterprises contain management information systems. The internal financial information system contains multiple subsystems that are responsible for the processing and data collection of various enterprise tasks. Each subsystem is responsible for corresponding financial information work, while communicating and collaborating with each other. Taking the most important general ledger subsystem and report subsystem as examples, various data from other subsystems of the financial information system are transferred to the general ledger subsystem, which collates them and ultimately fills in relevant data into relevant accounts. The functions of the general ledger subsystem mainly include processing accounting vouchers, generating related account books, and processing at the end of the period. The report subsystem is connected to all other financial information subsystems to summarize the accounting data, generate financial statements from the obtained data, and then visualize the financial statements to make them easier for users to understand. The financial information system collects, stores, and processes financial data to analyze the business activities and results of an enterprise and output financial information.

After the financial information system completes accounting, the management information system begins to analyze relevant data, provide effective information, and make intelligent decisions. Each subsystem of the management information system is responsible for different tasks. The financial analysis subsystem reprocesses the data processed by the financial information system to extract valuable information for enterprise management and decision-making. The financial budget management subsystem manages the enterprise budget through financial information system data, including the preparation, modification, saving, submission, and budget approval of budget tables. The project management subsystem is used to manage projects being implemented by an enterprise, analyze whether the project is proceeding as expected, identify areas that do not meet expectations, and take corresponding actions after analysis. The management information system also has functions such as leader query and decision support, which can help leaders make corresponding decisions. The financial information output from the financial information system is transmitted to the management

information system, which analyzes it and provides support for enterprise management and decision-making.

### **2.3 Overview of Cloud Accounting**

Cloud accounting, derived from cloud computing, is not only a system established on the basis of the Internet, but also a virtual accounting information system that provides accounting, management, and decision-making services for enterprises. It can be integrated with multiple servers and computer information to improve the shortcomings of traditional informatization processes. Specifically, there are many application software in cloud accounting, such as accounting application software, computing power, data storage, etc., which are also relatively convenient in use. You can directly access the accounting information on the cloud through the Internet, and at the same time, you can also transfer the accounting information on your computer to the cloud, further realizing information sharing. In addition, cloud accounting can greatly reduce the financial burden of enterprises, enabling enterprises to invest this part of their funds in other businesses or production, expanding their production scale and improving their production technology.

## **3. Problems faced by accounting information systems**

At present, there are still many problems in China's accounting information system, which is difficult to meet the needs of enterprises in the era of big data.

### **3.1 Limited data sources**

Data is the foundation of information, and if the sources of data are not extensive enough, sufficient and effective information cannot be obtained. Currently, many enterprise accounting information systems do not have sufficient database sources, with application data mostly being financial data and structured data, lacking non-financial and unstructured data that contain a large amount of useful information. These data only focus on the financial aspects of the enterprise, which is one-sided, making it impossible for the accounting information system to effectively analyze the actual situation of the enterprise. Without sufficient information, the reliability and accuracy of the financial analysis subsystem cannot be guaranteed. Moreover, budget management requires enterprises to have a good understanding of their own operating conditions and market changes. Only financial data and structured data cannot allow the budget management subsystem to operate effectively.

### **3.2 Low timeliness of data information**

In the era of big data, information dissemination is very rapid, and the timeliness of information is becoming increasingly important. The data used in enterprise accounting information systems are mostly data after transactions or events occur, and the information generated can only be information after transactions or events occur, that is, post event information. This single information does not significantly help enterprises. For example, in the financial information system, when an enterprise's inventory is damaged or outdated and requires impairment testing, if the enterprise still measures it at historical cost and does not update the inventory cost in a timely manner, it cannot reflect the true value of the inventory. However, if the inventory value is not true, it can lead to a series of reactions, causing errors in the relevant data of each subsystem, ultimately causing problems in the data information transmitted by the entire financial information system, Reduce the accuracy of management information system analysis.

### **3.3 Low level of intelligent system construction**

At present, the degree of intelligence of accounting information systems is not complete, mainly due to two problems: one is that the system is incomplete, for example, some enterprises do not have a management information system, or there are no important subsystems such as financial budget management and project management in the management information system. The second reason is

that the purchased accounting information system has poor connectivity with the internal enterprise. China's accounting information system software is still in the development stage, and there are still many shortcomings. Developing accounting information systems on their own is expensive, and most enterprises are unwilling to take the time and effort to develop accounting information systems on their own. Instead, they use outsourced software and other methods to use established accounting information systems. However, externally established accounting information systems may not fit perfectly with the business operations of the enterprise, resulting in insufficient connectivity between the system and the enterprise.

### **3.4 Incomplete system functions**

The accounting information system is not only a financial information system, but also should have the functions of a management information system. Simple bookkeeping and bookkeeping are not the ultimate goal of accounting information systems. Accounting information systems are important tools that provide assistance for enterprise management and decision-making. To achieve this goal, data reprocessing and analysis are essential. Obviously, this is a function that financial information systems do not have, which focuses on management analysis. At present, most enterprises do not have management information systems, which makes it impossible to reprocess and analyze data. This will result in incomplete functions of enterprise accounting information systems and inability to effectively provide services to enterprises. In particular, some small and medium-sized enterprises are relatively backward in terms of talent, technology, capital, and other aspects due to their own conditions. Enterprise leaders have not attached great importance to the establishment and use of accounting information systems, and have not invested sufficient funds in the construction of accounting information systems.

### **3.5 Poor linkage of system collaboration**

The problem of information islands refers to the insufficient liquidity of information in the accounting information system within the enterprise and the inability to share information with relevant departments in a timely manner, which can create obstacles to the work of various aspects of the enterprise. Financial information systems are highly relevant, and there is often a phenomenon of "pulling the trigger and moving the whole body.". Once the coordination of the system is not smooth, a series of errors will occur in financial information, and the management information system can only make incorrect analysis based on the incorrect financial information, leading to a significant reduction in the effectiveness of enterprise decision-making and management.

## **4. Optimization Strategy of Accounting Information System under Big Data Technology**

Big data technology brings both opportunities and enormous challenges to accounting information systems. In practical applications, it is necessary to always pay attention to safety precautions.

### **4.1 Improve the information security awareness of all personnel**

Many enterprises do not have a deep understanding of information security and only attach importance to the acquisition of information, rather than the protection of information. Once important financial information of enterprises is stolen, their operations may be severely affected. Therefore, enterprises need to strengthen their awareness of information security and regard important and unique information as their competitive advantage. Moreover, it is not enough for enterprise management to have this awareness. Information security can only be achieved if everyone takes it seriously.

#### **4.2 Establish an information security prevention system**

Network information is vulnerable to theft, and information sharing may disclose important information. Therefore, the establishment of a comprehensive information security management system is very important. Enterprises need to have an intelligent information security prevention system and establish a sound supervision system. Once suspicious operations or movements are detected, immediately block the accounting information system to ensure that important accounting information is not disclosed or tampered with. Technology is the foundation of the system, and the introduction of system monitoring technology is necessary for the establishment of an information security prevention system.

#### **4.3 Setting Effective Access Permissions**

The internal control of accounting information systems is very important, and the setting of permissions is particularly critical. Enterprises must strictly control their access permissions. Most enterprises only set passwords as entry permissions, which is obviously not enough because passwords are easily stolen by hackers, resulting in information disclosure. Permission settings can use face recognition, fingerprint recognition technology, etc., to more effectively improve the security of information.

### **5. Optimization Strategy of Accounting Information System under Cloud Accounting System**

Due to the short application time of cloud computing in enterprises, there are still some problems in the use process, such as a lack of effective applications, unreasonable system selection, and a lack of scientific audit processes. The accounting information system of enterprises under the cloud accounting system needs to be optimized and improved to effectively exert its application advantages.

#### **5.1 Increase the importance of management on accounting information systems**

To further optimize the cloud accounting information system, first of all, senior leaders of enterprises need to attach importance to it, strengthen the importance of ideas and put them into action, and support the construction of new accounting systems through the economy. Through specialized systematic training, comprehensive technical talents who possess both cloud accounting operational skills and accounting information operations are cultivated. Enterprise leaders should establish professional talent planning schemes to mobilize their employees to move forward according to the goals set, improve enterprise management efficiency, and learn from domestic and foreign cloud accounting application experiences to maximize enterprise benefits while ensuring that they are suitable for their own enterprises.

#### **5.2 Timely update the accounting system to improve efficiency**

The matching between the accounting system and the enterprise itself is directly related to the efficiency of accounting work. Therefore, when introducing cloud accounting information systems, it is necessary to first select an accounting system that meets the actual situation of the enterprise itself. For example, a more professional person should analyze the operation and management modes of the enterprise, while also considering the capital investment limit of the accounting system, so as to select the cloud accounting mode. Secondly, the cloud accounting system needs to be updated in real time during use, connecting to the cloud resource sharing pool, and promoting the enterprise to keep pace with the times. Finally, strengthening the maintenance and management of the cloud accounting system in the later stage is conducive to improving the work efficiency and efficiency of the enterprise.

### 5.3 Improve the establishment of a monitoring system to ensure the maintenance and operation of the cloud accounting system

Enterprises should establish specialized supervision departments, formulate reasonable and scientific supervision regulations and systems, effectively understand the working status of enterprise personnel, and improve their sense of responsibility. In addition, it is also necessary to ensure the timely updating and upgrading of the database in the cloud accounting system to avoid data leakage or other losses caused by system issues. Enterprises can also establish maintenance process file cards to enable all employees to master the application of basic cloud accounting systems, avoid operational or other issues affecting accounting work, and ensure the high-quality operation of cloud accounting information systems.

## 6. Conclusions

With the help of big data technology, accounting information systems can achieve data optimization, storage function optimization, report optimization, analysis function optimization, decision-making function optimization, and coordination optimization. Accounting information systems require the optimization of big data, but while optimizing, enterprises also need to pay attention to the security issues brought about by big data. Only in this way can big data be better applied to serve accounting information systems and enterprises.

Cloud accounting is a virtual accounting information system developed based on cloud computing technology. By applying cloud accounting, it can provide enterprises with a large number of network resources, improve the efficiency of enterprise resource utilization, and further improve accounting efficiency. Accounting personnel can provide enterprises with more complete and accurate financial data, actively promoting the rapid development of enterprises. In practical operation, enterprises should increase the importance of accounting information systems, and maximize the positive role of cloud accounting systems by strengthening management, scientifically selecting cloud accounting systems, establishing supervision mechanisms, cultivating comprehensive accounting personnel, and updating accounting systems in a timely manner.

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